

AMENDMENTS TO THE CLAIMS

The following is a complete listing of revised claims with a status identifier in parenthesis.

LISTING OF CLAIMS

1. (Currently Amended) A method for automatic retrieval, in an automation system, of engineering data from a runtime system for an engineering system, and restoring representatives of the automation objects in the engineering system, the ~~[[an]]~~ automation system including ~~[[with]]~~ a multiplicity of individual runtime automation objects in the runtime system, the runtime automation objects have no direct reference to any associated engineering objects in the engineering system, ~~for the restoration of representatives in an engineering system of objects of the automation system~~, the method comprising:

supplying, ~~[[via]]~~ by each of the automation objects, an identifying designation of a type of respective representative to the engineering system;

creating, via the engineering system, said corresponding representatives for the designated types and, for each of the representatives, entering a reference to the corresponding automation object; ~~[[and]]~~

reading out having, based upon the reference, each representative read out engineering information from the object into the representative using the reference; and

restoring each of the representatives by entering said information into itself.

2. (Previously Presented) The method as claimed in claim 1, wherein in a first step for the restoration of device representatives in the engineering system, the method further comprises:

supplying, for devices on which the automation objects run, an identifying designation of a type of respective device representative to the engineering system,

creating, via the engineering system, corresponding device representatives for the designated types and entering, for each of the device representatives, a reference to the device, and

having, based upon the reference, each device representative read out engineering information from the device and,

wherein, in a second step for the restoration of representatives of the automation objects in the engineering system, the method further comprises,

supplying, via the automation objects, an identifying designation of a type of respective representative to the engineering system,

creating, via the engineering system, corresponding representatives for the designated types and, for each of the representatives, entering a reference to the automation object, and

having, based upon the reference, each representative read out engineering information from the automation object.

3. (Previously Presented) The method as claimed in claim 2, wherein, in a third step for the restoration of communication relationships between the representatives of the automation objects in the engineering system, the method further comprises:

supplying, via the devices, lists with communication relationships to the engineering system,

converting, in the engineering system, entries of the lists into references to inputs and outputs of the representatives of the automation objects and, subsequently, setting up corresponding connections up in the engineering system.

4. (Previously Presented) The method as claimed in claim 1, wherein both the objects of the engineering system and the objects of the automation system are described by a uniform, executable object model and a direct communication at model level is possible between the objects of the engineering system and the objects of the automation system.

5. (Previously Presented) The method as claimed in claim 3, wherein entries in the lists with communication relationships contain sources and drains of the communication relationships, the sources and drains in each case being described by a triple from an identifier of the device, an identifier of the automation object and an identifier of the input or output.

6. (Previously Presented) The method as claimed in claim 1, wherein the objects of the automation system have no direct reference to the associated objects of the engineering system, to make it possible for the engineering system and automation system to be separated.

7. (Previously Presented) The method as claimed in claim 1 wherein, the method is used for the updating of already existing engineering information as a delta method.

8. (Currently Amended) A system, in an automation system, for automatic retrieval of engineering data from runtime ~~an automation~~ system for an engineering system, and restoring representatives in the engineering system, the automation system including [[with]] a multiplicity of individual runtime automation objects in the runtime system, [[for]] the automation objects having no direct reference to any associated engineering objects in the engineering system, the method ~~restoration of representatives in an engineering system of objects of the automation system~~, comprising:

automation objects, each of the automation objects including an identifying designation of a type of respective representative for being supplied to the engineering system[[.]]; wherein

the engineering system is configured to create the representatives for the designated types, and configured to enter a reference to the corresponding automation object for each of the representatives, and ~~wherein~~

each of the representatives is configured to the reference is
provided for the reading read out [[of]] engineering information from the
corresponding automation object and enter said engineering informaiton into
itself to restore the representatives of the automation objects in the engineering
system a respective representative by each representative.

9. (Previously Presented) The system as claimed in claim 8, wherein
for the restoration of device representatives in the engineering system,

devices on which the automation objects run, include an identifying
designation of a type of respective device representative for being supplied to
the engineering system,

the engineering system is configured to create device representatives for
designated types, and configured to enter a reference to the device for each of
the device representatives,

the reference being provided for the reading out of engineering
information from the device by each device representative and wherein, for the
restoration of representatives of the automation objects in the engineering
system,

the automation objects contain an identifying designation of a type of
respective representative for being supplied to the engineering system,

the engineering system is configured to create representatives for the
designated types and configured to enter a reference to the automation object
for each of the device representatives,

the reference being provided for the reading out of engineering information from the automation object by each representative.

10. (Previously Presented) The system as claimed in claim 9, wherein, for the restoration of communication relationships between the representatives of the automation objects in the engineering system,

the devices include lists with communication relationships for being supplied to the engineering system and

the engineering system is configured to convert entries of the lists into references to inputs and outputs of the representatives of the automation objects, and configured to set up the corresponding connections in the engineering system.

11. (Previously Presented) The system as claimed in claim 8, wherein both the objects of the engineering system and the objects of the automation system are described by a uniform, executable object model and a direct communication at model level is provided between the objects of the engineering system and the objects of the automation system.

12. (Previously Presented) The system as claimed in claim 10, wherein entries in the lists with communication relationships contain sources and drains of the communication relationships, the sources and drains in each

case being described by a triple from an identifier of the device, an identifier of the automation object and an identifier of the input or output.

13. (Previously Presented) The system as claimed in claim 8, wherein the objects of the automation system have no direct reference to the associated objects of the engineering system, to make it possible for the engineering system and automation system to be separated.

14. (Previously Presented) The system as claimed in claim 8, wherein the system is used for the updating of already existing engineering information.

15. (Previously Presented) The method as claimed in claim 2, wherein both the objects of the engineering system and the objects of the automation system are described by a uniform, executable object model and a direct communication at model level is possible between the objects of the engineering system and the objects of the automation system.

16. (Previously Presented) The method as claimed in claim 3, wherein both the objects of the engineering system and the objects of the automation system are described by a uniform, executable object model and a direct communication at model level is possible between the objects of the engineering system and the objects of the automation system.

17. (Previously Presented) The method as claimed in claim 4, wherein entries in the lists with communication relationships contain sources and drains of the communication relationships, the sources and drains in each case being described by a triple from an identifier of the device, an identifier of the automation object and an identifier of the input or output.

18. (Previously Presented) The method as claimed in claim 15, wherein entries in the lists with communication relationships contain sources and drains of the communication relationships, the sources and drains in each case being described by a triple from an identifier of the device, an identifier of the automation object and an identifier of the input or output.

19. (Previously Presented) The method as claimed in claim 16, wherein entries in the lists with communication relationships contain sources and drains of the communication relationships, the sources and drains in each case being described by a triple from an identifier of the device, an identifier of the automation object and an identifier of the input or output.

20. (Previously Presented) The system as claimed in claim 9, wherein both the objects of the engineering system and the objects of the automation system are described by a uniform, executable object model and a direct communication at model level is provided between the objects of the engineering system and the objects of the automation system.

21. (Previously Presented) The system as claimed in claim 10, wherein both the objects of the engineering system and the objects of the automation system are described by a uniform, executable object model and a direct communication at model level is provided between the objects of the engineering system and the objects of the automation system.

22. (Previously Presented) The system as claimed in claim 11, wherein entries in the lists with communication relationships contain sources and drains of the communication relationships, the sources and drains in each case being described by a triple from an identifier of the device, an identifier of the automation object and an identifier of the input or output.

23. (Previously Presented) The system as claimed in claim 20, wherein entries in the lists with communication relationships contain sources and drains of the communication relationships, the sources and drains in each case being described by a triple from an identifier of the device, an identifier of the automation object and an identifier of the input or output.

24. (Previously Presented) The system as claimed in claim 21, wherein entries in the lists with communication relationships contain sources and drains of the communication relationships, the sources and drains in each case being described by a triple from an identifier of the device, an identifier of

the automation object and an identifier of the input or output.

25. (Previously Presented) The method of claim 2, wherein the first step for the restoration of device representatives in the engineering system is initiated from a software system.

26. – 27. (Canceled).